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SCIENCE.

FRIDAY, APRIL 23, 1886.

COMMENT AND CRITICISM.

AT A TIME when the interest in the industrial organization of society is so great as it is at the present moment, it seems proper that *Science* should do its part in giving an opportunity for the free discussion of the views of any who have made especial study of social questions. It is claimed by the leaders of the working-classes, so called, that the real advances in society organization are not led by the *doctrinaires* of the schools, but by hard-fisted workingmen, who know more of their physical and intellectual wants than they do of logic. These self-asserting leaders compliment the professors upon their well-rounded sentences, giving a history of what has been accomplished, and sketching what may be the outcome of the future, but they look upon the schoolmen as little more than scribes. Despite this lowly position to which the professors of political science are assigned, there can be no doubt of the necessity of giving the reading-classes as good an opportunity as possible for appreciating the present condition of social science and for understanding the questions which are now demanding solution. Before venturing upon the wide field of sociology, it is well first to present a clear statement of the tenets of political economy as they are advanced by the writers of the times. There exists in this country, as well as abroad, a body of students, principally young men, who, after pointing out the continued progress in the tenets of political science as time changes society, insist that the at present, or recently, held dogmas are not dogmas at all, but must yield to other rules of expediency involved by the changing condition of industrial activity.

Of course, it is well understood that one main difference between this new school and the old is in asserting the desirability of greater interference in industry on the part of the state. Somebody might say that this idea has come from Germany, where the state initiative is so paramount in all enterprise; but the adherents of

the new school repudiate the assertion that their movement is a German movement, and claim that the discontent with the application of antiquated doctrines made itself felt in the valley of the Po, the heart of New England, and on the banks of the Thames. In a word, they say that the times are ripe for a decided renovation of the tenets of political economy; and it is with a view of giving this school an opportunity of propounding the fundamental principles which they think should rule at the present time in that science, that a series of articles has been arranged to appear in *Science*. This series begins in the present number with one upon 'The change in the tenets of political economy with time,' by Mr. Edwin R. A. Seligman of Columbia college. Others will follow by Prof. E. J. James, on 'The state as a factor in economics;' by Prof. R. T. Ely, on 'Ethics and economics;' by Prof. H. C. Adams, on 'The idea of property as an economic category,' showing how this varies with our ideas of what is best suited to the times; by Prof. J. B. Clark, upon 'The limits of competition, natural and artificial;' by Prof. R. M. Smith, on 'The methods of investigation in economics;' and by Prof. Simon Patten, on 'The effect of the consumption of wealth on the economic condition of society.' The article in the present number, by Mr. Seligman, is intended to present a review of the history of the industrial organization up to the present time, and to indicate in what direction the further development may take place. The other articles of the series will probably be accompanied by criticism from the pens of those belonging to the so-called orthodox school.

SEVERAL VIOLENT TORNADOES in Minnesota and Iowa, on the afternoon of April 14, proved unusually destructive to life and property on account of finding towns in their way. The description of them in the associated press reports is exceedingly poor, by reason of the reporters' unsuccessful efforts to do rhetorical justice to the sad occasion; but it may be gathered that there was a number of separate tornadoes occurring at about the same time, and following the customary south-west to north-east path, though there is confusion in the statements with respect

to this last point, and that in the neighboring districts there was a violent thunder-storm with heavy rain and hail. On consulting the daily weather-maps for April 14 and 15, a well-marked 'area of low pressure' is found moving north-eastward from Wyoming, over Dakota, into the Winnipeg district; a very abnormal turn of the isotherms shows how the winds on the south-eastern side of this 'area' carried warm air far up the Mississippi valley, and brought about the strong contrasts of temperature and moisture that generate violent local storms. These tornadoes were therefore *normal*, or like the average of their class, in every respect — except, perhaps, in occurring farther north than is usual at this time of year.

In review of this, there seems to be ground for the desire so generally expressed that the signal service should give some warning of the probable occurrence of tornadoes, at least in such a way that the inhabitants of towns in the exposed districts may be on the lookout for the approach of the dreaded funnel-cloud. The reports state that in the open country there was little loss of life, as the storms came by day, and persons generally saw them in time to take refuge in the tornado-cellars with which nearly every farm in that region is provided. But in the towns, where persons remain more indoors, and where clouds near the horizon are not easily seen, tornadoes too commonly arrive unperceived till the roar of their winds tells that there is no time for escape; and here some early intimation of the impending danger should be given. The warnings based on the conditions shown in the morning weather-map might be announced as experimental for a season, so that a public trial of their value could be made. Towns at least could be reached by telegraph and telephone in all parts of the Mississippi valley by noon on the days of danger; and the saving of lives in some places would compensate for a good deal of needless anxiety caused by warning towns that escape destruction. There seems to be no way whatever of saving property that lies in the path of the storm.

ONE HAS ONLY to glance at a bibliography of astronomy during the present century to become impressed with the fact of two very marked impulses to investigation in that science, given by the discovery, first, of the planet Neptune in 1846,

and, second, of the satellites of Mars in 1877. The latter has given rise no less to a series of popular and educational books and treatises on astronomy, in many languages, of which, it would seem, the end is not yet. These have had all degrees of worth, as their production has been participated in by authors of all degrees of information and capacity, from those who have the scantiest of reason for writing any thing whatever, to astronomers of the maturest experience, both as teachers and as investigators. The author of the work to which we call attention in a subsequent column is not unknown in our country. His early years as an astronomer were spent at Parsonstown, Ireland, in charge of the mammoth reflecting telescope of the Earl of Rosse, to which post he was appointed in 1865, at the age of twenty-five years. Dr. Ball became astronomer royal twelve years ago; and he has attained no little fame as a lecturer, having appeared before the leading learned institutions of Great Britain. Also in 1884 he lectured before our own Lowell institute, Boston, and in January last the honor of knighthood was conferred upon him.

In view of these facts, the developments in regard to his unacknowledged appropriation of the work of others assume the greater importance. In the *Nation* a fortnight or two ago, attention was directed to certain passages in 'The story of the heavens,' which Dr. Ball had borrowed bodily from Professor Newcomb's 'Popular astronomy,' with evidently no intention of ever making a proper return; while, in our present issue, it becomes apparent that he has paid a like compliment to Professor Young's admirable treatise on 'The sun.' Every one who reads it must thank Dr. Ball for a fascinating book, a very accurate one too, and he has made excellent use of his pilferings; but it seems as if he might have made a freer use of inverted commas, or confined himself, if we may borrow from Mr. Lowell, to 'pillaging the dictionary.' And this leads us further to an uncompromising denunciation of a reckless, extempore sort of book-making, too common nowadays, and which cannot be too strongly condemned. The publishers, in their struggle to meet the insatiate cry for something new, something that will sell because it is new, are as much to be blamed as authors; and the people even more, for creating a demand for these loosely woven fabrics. It is, however, a demand

which, soon or late, must cease; for, while many buy, few read, and they the close readers who make quick work of the loose author. If it is a necessary stage of our evolution, it may be hoped that the relay is not far removed.

GOVERNMENT SURVEYS.

THE proper co-ordination and management of the different government surveys, in order to secure in the most economical manner the results for which they were created, has been and yet is the subject of considerable discussion, and of diverse views among those interested. The consolidation of the geological surveys has prevented much of the clashing that formerly inevitably resulted, and at different times the national academy has been called upon to propose plans for the relations that should exist between the different bureaus. The chief ones proposed, as the readers of *Science* are aware, are, 1°, that the secretary of the Smithsonian institution should be placed in control: 2°, that there should be a cabinet officer, a secretary of science and industry, who should be charged with all the different bureaus. Prof. W. P. Trowbridge, in the issue of the *New York Star* for April 13, urges the establishment of a permanent commission, which should be competent to understand the different works, and have sufficient time to examine them yearly in detail. As he further says, there can be no question but that, in the appropriation of money by congress for any purpose whatsoever, the objects and aims to be accomplished by such appropriation should be definitely and fully known; and funds for any public works of a continuous character should never be dependent upon personal urging by the heads of bureaus, and all this should be within the province of a central co-ordinating authority.

He believes that a properly organized permanent non-political commission, such as that known as the Regents of the Smithsonian institution or the Lighthouse board, and in which should be represented the executive heads of the bureaus, the legislative branch of the government, and the scientific men of the country, would be an efficient safeguard against misdirected expenditures, faulty schemes or projects, and the duplication of work by two or more bureaus. It is not at all certain that a cabinet officer, with his political tenure of office, would be sufficient to co-ordinate the different surveys, except in so far as he would serve as a fiscal administrator, and as a medium between the scientific bureaus and congress or the executive. Political considerations would make it improbable that such a head could always be

found who should possess the varied scientific and other qualifications that would be required to determine the scope, the field of work and investigation, and the methods to be pursued for each branch of scientific work.

The executive and scientific details, as he rightly says, of any one of these bureaus, are enough to tax to the full extent of his powers the most skilled expert in those branches of scientific and practical knowledge which belong to the objects represented by the bureau. For this reason he deprecates any attempt to consolidate the different bureaus, and especially the coast and geodetic survey, whose work has been so fruitful of practical and valuable results for so many years, with any other.

The unfortunate shortcomings in this survey during the past year have given currency to numerous false and exaggerated rumors, which have tended to produce an injurious result, not only upon the public mind, but upon congress. Professor Trowbridge urges the injustice of including in general condemnation all the different bureaus on account of the errors of individuals in one branch, and yet more justly cites the long years of faithful and highly valuable public services that have been rendered by the great body of officers and attachés of the coast survey, who have grown up in the service, and who have not for a moment been included in any recent accusations.

HEALTH OF NEW YORK DURING MARCH.

WE continue in the present number the graphic representation of the daily mortality in New York, which was commenced in *Science* in the number for March 19. In February the greatest mortality from all causes of disease was during the tenth day, when 118 persons died: during March this was exceeded on four days, running up to 137 on the last day of the month. During the twenty-eight days of February there were 2,767 deaths; during the same period in March there were 3,054 deaths, — an increase of 277: if to this are added the deaths which occurred in the last three days of March, we shall have 3,392 representing the mortality of the past month, — an average of nearly 110 each day, or about 5 persons every hour.

The number of deaths of children under five years of age has increased as compared with February; there has also been an increase in the zymotic class and in consumption; while the mortality from diphtheria and scarlet-fever is less. Diarrhoeal diseases have carried off 32 persons, as compared with 33 in the preceding month.